3   Structure and Format

The 2012 TIGER/Line Shapefiles and associated relationship files are offered in a compressed format. One zipped file is available for each layer, with a file extension of .zip. Each zipped shapefile consists of the following five files:

- .shp – the feature geometry
- .shx – the index of the feature geometry
- .dbf – the tabular attribute information
- .prj – the coordinate system information
- .shp.xml – the metadata

Each zipped relationship file consists of the following two files:

- .dbf – the tabular attribute information
- .dbf.xml – the metadata

3.1   Organization of the Files

Geographic entities included in the Census Bureau's tabulations are generally hierarchical. The organizational structure of the 2012 TIGER/Line Shapefiles is based on this hierarchical framework. Figures 1 and 2 show the progression of geographic areas from the nation to the block level, as well as the American Indian, Alaska Native, and Native Hawaiian areas.

The 2012 TIGER/Line Shapefiles are released in one of three types of hierarchical coverage—National, state-based or county-based. Some shapefiles are released in multiple coverages to enable flexibility in downloading files. Descriptions of each coverage type are listed below. Table 1 provides an overview of which file types are available by each hierarchical coverage.

- National files—each file includes data for the 50 states, the District of Columbia, Puerto Rico, Island Areas.
- State-based files—each file includes data for one specific state or equivalent.
- County-based files—each file includes data for one specific county or equivalent.

Figure 1. Standard Hierarchy of Census Geographic Entities
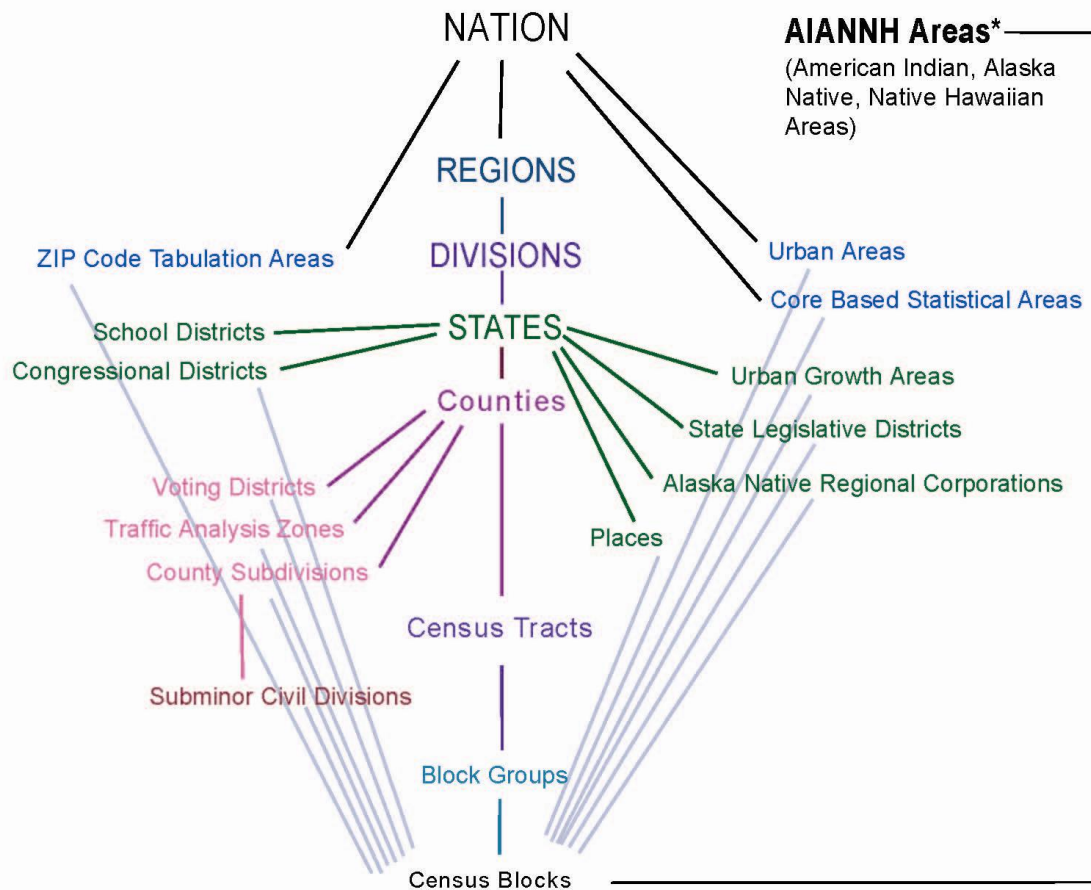
Figure 2. Hierarchy of American Indian, Alaska Native, and Native Hawaiian Areas
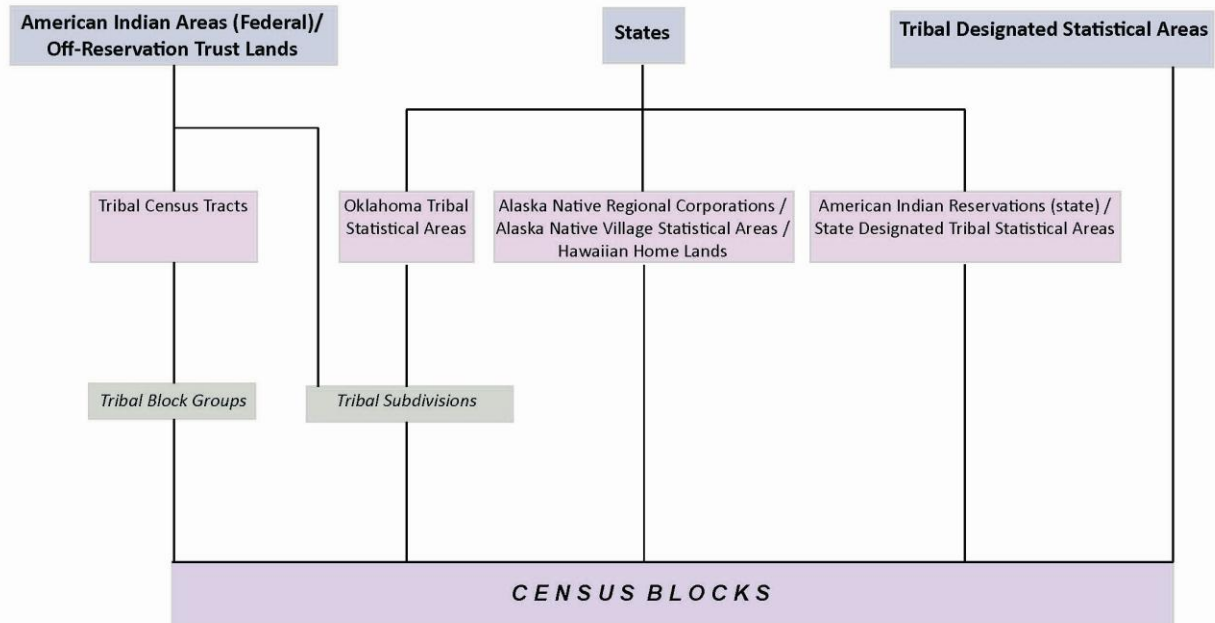
Table 1: 2012 Shapefile Layers Availability by Parent Geography

Layer	National Files	State-Based Files	County-Based Files
Shapefiles			
Alaska Native Regional Corporation		✓	
American Indian Tribal Subdivision	✓		
American Indian/Alaska Native/Native Hawaiian Areas	✓		
Block		✓	
Block Group		✓	
Census Tract		✓	
Combined New England City and Town Area	✓		
Combined Statistical Area	✓		
112th Congressional Districts	✓		
Consolidated City		✓	
County and Equivalent	✓		
County Subdivision		✓	
Elementary School District		✓	
Estates		✓	
Metropolitan Division	✓		
Metropolitan/Micropolitan Statistical Area	✓		
New England City and Town Area	✓		
New England City and Town Division	✓		
Place		✓	
Public Use Microdata Area		✓	
Secondary School District		✓	
State and Equivalent	✓		
State Legislative District-Lower Chamber		✓	
State Legislative District-Upper Chamber		✓	
Subminor Civil Division		✓	
Tribal Block Group	✓		
Tribal Census Tract	✓		
Unified School District		✓	
Urban Areas	✓		
Urban Growth Area		✓	
Voting District		✓	
5-digit ZIP Code Tabulation Area	✓		
All Lines			✓
All Roads			✓
Area Hydrography			✓
Area Landmark		✓	
Linear Hydrography			✓
Military Installation	✓		
Point Landmark		✓	

Layer	National Files	State-Based Files	County-Based Files
Primary Roads	✓		
Primary and Secondary Roads		✓	
Rails	✓		
Address Range-Feature			✓
Topological Faces (Polygons With All Geocodes)			✓
Relationship Files			
Address Range-Feature Name			✓
Address Ranges			✓
Feature Names			✓
Other Identifiers			✓
Topological Faces-Area Landmark		✓	
Topological Faces-Area Hydrography			✓
Topological Faces-Military Installations	✓		

3.2   File Naming Conventions

The name of each file is:
        tl_2012_<extent>_<layer>.<ext>

Where:
        tl = TIGER/Line

        2012 = the version of the files

        <extent> = parent geography entity ID code (variable length of two to five characters)
                The entity ID code identifies the geographic extent by specific entity for which the file
                contains data. It is of variable length depending on the type of file:

        National: 2-character abbreviation – "us"
        State-based: 2-digit numeric state FIPS code
        County-based: 5-digit numeric county FIPS code

        <layer> = layer tag of variable length
                The layer tag specifies the type of geography or feature the file contains.

        <ext> = the file extension

Examples:
        National shapefile: County and Equivalent shapefile
                File Name: tl_2012_us_county.shp

        State-based shapefile: State and Equivalent shapefile for Maryland
                File Name: tl_2012_24_state.shp

        County-based shapefile: All Lines shapefile for Cayuga County, New York
                File Name: tl_2012_36011_edges.shp

3.3   Datum (GCS NAD 83)

Each shapefile contains a .prj file that contains the GIS industry standard well-known text (WKT) format to describe the coordinate system/projection/datum information for each shapefile. This enables users to easily import the shapefiles into their local coordinate system. All Census Bureau generated shapefiles are

in Global Coordinate System North American Datum of 1983 (GCS NAD83). Each .prj file contains the following:

GEOGCS["GCS_North_American_1983",DATUM["D_North_American_1983",SPHEROID["GRS_1980",6378137, 298.257222101]],PRIMEM["Greenwich",0],UNIT["Degree",0.017453292519943295]]

3.4 Metadata

Metadata are an organized data file used to capture the basic descriptive characteristics about data. For example, metadata will describe the quality, purpose, spatial extent, and history of a particular dataset.

A metadata file in XML (Extensible Markup Language) format is provided along with each shapefile and relationship file. Metadata files associated with shapefiles have the extension .shp.xml, and those associated with relationship files have the extension .dbf.xml. The metadata files comply with Federal Geographic Data Committee (FGDC) standards and can be read in any text editor. Please note that in order to see all the metadata element values, the 'FGDC Classic ' stylesheet must be specified when using ESRI's ArcCatalog.

The TIGER/Line Shapefiles metadata contain an entity and attribute information section. The entity and attribute information provide a detailed description of the TIGER/Line Shapefiles and relationship files that include publication date, contact information, and all of the possible valid values for an attribute and each value's meaning. There will be one entity section for each shapefile and relationship file. Users should refer to the metadata files for extensive documentation about the contents of the shapefiles and relationship files.

In addition, the All Lines Shapefile also contains a Spatial Metadata Identifier (SMID), which identifies the source of the coordinates for each edge and provides the link between the TIGER/Line Shapefiles and the source and horizontal spatial accuracy information. Refer to the metadata for each county or equivalent entity for information on the source for each edge and the horizontal spatial accuracy, where known. Please note that the horizontal spatial accuracy, where reported, refers only to those edges identified as matched to the source with that accuracy. It is not the spatial accuracy of the TIGER/Line Shapefile as a whole. For more information regarding the *All Lines Shapefile* please refer to Section 5.11, Linear Features.

TIGER/Line Shapefiles are a product of the U.S. Census Bureau and as such contain metadata that comply with two standards: the Census Bureau Geospatial Product Metadata Standard (GPMS), and the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata (CSDGM). The Census Bureau created the Geospatial Product Metadata Standard (GPMS), which includes metadata elements from the FGDC CSDGM and the International Organization for Standardization (ISO) metadata standard: ISO 19115.